

January 26, 2010

Via Mail and Electronic Mail

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Re: EPA Draft Remedial Investigation Report for Omega Chemical Corp. Superfund Site
OU-2.

Dear Ms. Deschambault and Ms. Lane:

This letter, supported by the attached documents, provides McKesson's comments on certain inaccurate statements in the OU-2 Draft Remedial Investigation ("draft RI") for the Omega site prepared for USEPA by CH2M Hill. McKesson requests that these inaccurate statements be corrected in the final remedial investigation report.

McKesson Was Permitted to Discharge Corrosive Drum Wastewater, Not "Solvent Wastewater."

The draft RI states that certain facts set forth in it are "based on information provided in Blakely Environmental Investigations, Inc., 2002". See attached excerpts of draft RI at p. 5-15, section 5.5.1.6. However, the BEII report referenced above contains a number of false or misleading statements, including one that is improperly repeated in CH2M Hill's draft RI.

Specifically, the draft RI states that at the former McKesson facility, "[s]olvent mixing operations between 1977 and 1986 resulted in a waste stream of a minimum of 1,500 gallons of

solvent wastewater per day discharged into an unlined ditch.” (draft RI at p. 5-15, section 5.5.1.6.) This statement in the draft RI is based on BEII’s false attribution of this statement to a non-existent USEPA report. Moreover, the statement is false, a conclusion in which DTSC has concurred. See DTSC’s attached February 15, 2002 memorandum at p. 5, paragraph no. 8. The fact is that McKesson obtained an industrial wastewater (IWW) discharge permit in 1976 that permitted it to discharge up to 600 gallons per day of corrosive drum wastewater, not “solvent wastewater.” Moreover, that wastewater was discharged to the sanitary sewer, not an unlined ditch. These facts are confirmed in the 1976 IWW permit attached hereto.

Accordingly, McKesson requests that the repetition in the draft RI of BEII’s false allegation be deleted from the final RI.

1,1,1-TCA Is Not A “Signature” Compound For the McKesson Facility

In Section 5.5 regarding “Other Sources of Contamination,” the draft RI describes the McKesson Site, stating:

“While freons are considered signature compounds for the former Omega facility, 1,1,1-TCA is considered a signature compound for the McKesson facility. Although 1,1,1-TCA is present at and near the former Omega property, it is generally absent in the area upgradient of the former McKesson and Angeles sites” (draft RI at p. 5-15, section 5.5.1.6.)

While McKesson does not dispute that 1,1,1-TCA contamination has been detected under its site in prior investigations, other sections within the draft RI demonstrate there are many other sources of 1,1,1-TCA upgradient and near the McKesson facility as well. For example, the draft RI itself states that 1,1,1-TCA is present in soil at detectable concentrations on the Angeles Site, which is immediately upgradient of the McKesson Site. (draft RI at p. 5-14, section 5.5.1.5.) In fact, the draft RI later expressly states that “Angeles Chemical Company (8915 Sorensen Avenue, Santa Fe Springs) is a source of . . . 1,1,1-TCA, . . .” (draft RI at p. 8-7, section 8.2.4;.) 1,1,1-TCA was also documented at other sites upgradient and near the McKesson Site:

- There were documented spills of 1,1,1-TCA at the Foss Plating, Inc. site at 8140 Secura Way, Santa Fe Springs, California, which is located north/northeast (upgradient) of the McKesson Site. (draft RI at p. 5-12, section 5.5.1.1.)
- The draft RI states that at Site A, located northeast of the McKesson site at 12128 Burke Street, Santa Fe Springs, CA, “[g]roundwater sampling at the 40-acre site conducted between November 1990 and January 1991 found 1,1-DCE, PCE, TCE, 1,1,1-TCA, and Freon 11 at maximum concentrations of 1,400 µg/L, 520 µg/L, 500 µg/L, 14 µg/L, and 370 µg/L, respectively.” (draft RI at p. 5-16, section 5.5.1.7.)

- The draft RI states that at Site B, located west of the McKesson Site at 8921 Dice Road, Santa Fe Springs, CA, 1,1,1-TCA was detected in groundwater and that “The presence of 1,1,1-TCA and other VOCs indicate that Site B is a possible source of 1,1,1-TCA, PCE, TCE, 1,2-dichloropropane, 1,1-DCA, 1,1-DCE, and cis-1,2-DCE contamination.” (draft RI at p. 5-20, section 5.5.3.1.)
- 1,1,1-TCA was present at the Phibro-Tech site, located just west of the McKesson Site at 8851 Dice Road, Santa Fe Springs, CA. The RI notes that “1,1,1-TCA concentrations increase from the Phibro-Tech property to Site C property located directly downgradient of Phibro-Tech and Site B, indicating that Site B is a possible source of 1,1,1-TCA in this area.” (draft RI at p. 5-32, section 5.7.11.5.)

Accordingly, data within the draft RI contradicts the statement that 1,1,1-TCA should be considered a “signature” compound for the McKesson Site, given the number of other sources of 1,1,1-TCA upgradient of and nearby the McKesson site. McKesson requests that the term “signature compound” be dropped in describing 1,1,1-TCA and the McKesson site and that the draft RI instead accurately summarize each of the sites where 1,1,1-TCA has been detected in the underlying soil and/or groundwater.

On the Angeles Site, LNAPL Has Been Detected In the Northern, Central, And Southern Portions Of the Site, Not Only Near the Southern Boundary

Also in Section 5.5 regarding “Other Sources of Contamination,” the draft RI describes the Angeles Site, stating:

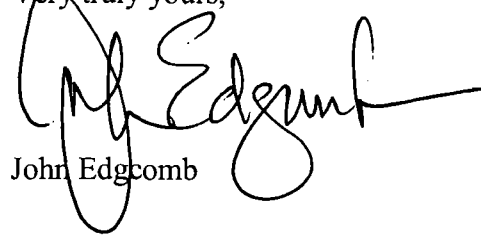
“Free product was reported floating at several onsite monitoring wells near the southern boundary of the [Angeles] site. The product is a light nonaqueous phase liquid (LNAPL) consisting of petroleum hydrocarbons with small concentrations of VOCs.” (draft RI at p. 5-14, section 5.5.1.5.)

However, LNAPL was not only detected in wells near the southern boundary of the Angeles site. LNAPL was detected in various groundwater wells from the northern, central, and southern portions of the Angeles Site. See attached cover page of the August 28, 2008 Haley & Aldrich Remedial Investigation Report of the Former Angeles Chemical Company, and Table 8 and Figure 05. Accordingly, McKesson requests that the information regarding the location of LNAPL detections in groundwater wells at the Angeles site be more accurately characterized.

Thank you for your consideration and please call me if you have any questions.

Lynda Deschambault; Jackie Lane
January 26, 2010
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Very truly yours,

A handwritten signature in black ink, appearing to read "John Edgcomb". The signature is fluid and cursive, with a large loop at the beginning and a long horizontal stroke at the end.

John Edgcomb

Attachments (4)

cc: Jean Mescher, McKesson Corp.

**DRAFT REMEDIAL INVESTIGATION REPORT
OMEGA CHEMICAL CORPORATION SUPERFUND SITE OPERABLE UNIT 2
LOS ANGELES COUNTY, CALIFORNIA
VOLUME 1**

EPA Contract No. EP-S9-08-03
EPA Task Order No. 038-RICO-09BC
CH2M HILL PROJECT NO. 386743

Prepared for
U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, California 94105

Prepared by
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March 2009

5.4.4.3 Hexavalent Chromium

Hexavalent chromium was detected only in downgradient sample HPW-3B (0.61 µg/L) at a concentration below the California Toxics Rule for Aquatic Life Protection level of 11 µg/L. The Site F location does not appear to be a source of hexavalent chromium contamination in groundwater.

5.4.5 TCE Source at Whittier Boulevard

Figure 5-8 presents a site location map of borings installed near the TCE Source at Whittier Boulevard. Posted concentrations of several analytes are also shown in the figure. Table 5-15 presents a summary of detections for samples collected at the site.

TCE and 1,1-DCE were detected in both upgradient and downgradient samples at concentrations in exceedance of their California Primary MCLs (5 µg/L and 6 µg/L, respectively). TCE was detected in upgradient and downgradient locations, but higher concentrations were generally reported in downgradient samples. A maximum TCE concentration of 2,700 µg/L was reported in downgradient sample HPA-13. The maximum upgradient TCE concentration was reported in boring HPA-18 (770 µg/L). Benzene was reported in sample HPA-16 (1.2J µg/L) and the HPA-16 field duplicate (1.2J µg/L) as slightly above the California Primary MCL for benzene (1 µg/L).

Although 1,1-DCE and benzene were found at concentrations greater than their MCLs, TCE appears to be the predominant contaminant beneath the site. TCE concentrations are higher in downgradient samples. The maximum downgradient TCE concentration (2,700J µg/L) is approximately 3 times greater than the maximum upgradient TCE concentration (770 µg/L). The TCE distribution indicates that its source area is at or near the empty lot where samples HPA-12 to HPA-15 were collected. The results further indicate that a narrow plume of TCE extends from the TCE Source at Whittier Boulevard across Whittier Boulevard, continues on a southwesterly path, and eventually merges with the Omega plume.

5.5 Other Sources of Contamination

A discussion of several source areas of VOCs contamination in OU2 and vicinity is provided below. Based on a review of available information, source areas were classified as areas with primarily chlorinated VOCs contamination (e.g., PCE, TCE, 1,1,-DCE, etc.) or nonchlorinated VOCs (e.g., total petroleum hydrocarbons [TPH], benzene, toluene, ethylbenzene, and xylene [BTEX] compounds) contamination. Source areas of primarily chlorinated VOCs contamination are discussed in detail in Section 5.5.1 and include sites where the following companies currently operate and/or operated: Foss Plating, Phibro-Tech, Techni-Braze, Pilot Chemical, Angeles Chemical, the former McKesson Corporation, and Site A. Source areas of primarily nonchlorinated VOC contamination are discussed in detail in Section 5.5.2 and include the former CENCO Refinery site, OFRP area, and the G&M Oil Company site. Section 5.5.3 discusses sites located within OU2 that are likely not sources of VOC contamination in groundwater (but historical groundwater analytical data for them are available), other sites at OU2 that may be sources of VOCs in groundwater, and sites near OU2 that have groundwater contamination.

The file review summaries are based on results from CH2M HILL's file review and CH2M HILL's review of information and documents provided by EPA.

5.5.1 Chlorinated VOCs Source Areas

5.5.1.1 Foss Plating Co., Inc., 8140 Secura Way, Santa Fe Springs, California

The site summary presented below is based on information provided in Winefield and Associates, 2006; DTSC, 2003; Foss Plating, 2002; and Jack's Environmental Technology, 2003.

Foss Plating is located at 8140 Secura Way, Santa Fe Springs, California, and operated at the site from 1968 until 2005. Processes at this facility included metal polishing, nickel plating, and chrome plating, using both trivalent and hexavalent chromium. Hazardous wastes produced include spent rinses containing nickel and chromium and sludge-containing materials.

Chemicals used onsite included PCE; 1,1,1-TCA; methylene chloride; chromium; lead; nickel; arsenic; and cyanide. A total of 11 ASTs are located onsite, of which five are used for wastewater accumulation and treatment, and six are used for chemical storage. Several concrete USTs were used for storage as part of a clarifier system that was later removed.

In 1995, a spill was documented in the vicinity of the UST area, and consisted of 10 to 15 gallons of 1,1,1-TCA. Soil samples from a 1999 investigation, indicated the presence of PCE, chromium, and nickel at concentrations of 0.048 milligrams per kilogram (mg/kg), 97 mg/kg, and 301 mg/kg, respectively.

Foss Plating completed soil and groundwater investigations in March 2006, which concluded that Foss Plating was a contributor to soil and groundwater contamination with zinc, chromium, and PCE. According to this groundwater investigation, the primary contaminants found in groundwater above their MCLs were total chromium, hexavalent chromium, PCE, TCE, and chloroform. Maximum concentrations for these analytes were 2,300 µg/L, 910 µg/L, 490 µg/L, 6.5 µg/L, and 28µg/L, respectively. Elevated concentrations of PCE, TCE, and hexavalent chromium in downgradient well MW6 (Figures 5-11, 5-12, and 5-17) are interpreted as an indication of the release of these compounds at Foss Plating.

5.5.1.2 Phibro-Tech, Inc., 8851 Dice Road, Santa Fe Springs, California

The site summary presented below is based on information provided in Cal/EPA and DTSC, 1996; Iris Environmental, 2007; Kleinfelder, 1986; and CDM, 2005.

Phibro-Tech is located at 8851 Dice Road, Santa Fe Springs, California. The property was first a railroad switching station, then a foundry casting facility between the late 1940s and early 1950s, Best Fertilizer between 1949 and 1954, a chemical plant for Pacific Western Chemical Company from 1957 to 1960, and since 1960, was operated under various names including Southern California Chemical (SCC), CP Chemicals, Inc. and Phibro-Tech, Inc. SCC received liquid hazardous wastes for reprocessing.

Phibro-Tech has operated as an inorganic chemical manufacturing facility that receives liquid hazardous waste from the electronics and aerospace industries and produces a

variety of chemicals including copper oxide, copper sulfate, ferric chloride, etchants, solder strippers, brighteners, and conditioners. Hazardous wastes generated include wastewaters contaminated with chromium and cadmium. Phibro-Tech operates a variety of waste management units with manufacturing and operational equipment including reactors, settling tanks, holding tanks, wastewater treatment tanks, filter presses, process and storm drain sumps, drum storage areas, and drum and truck washing areas.

Site investigations in 1985 reported elevated levels of several contaminants in soil which include chromium (30,000 mg/kg), copper (26,000 mg/kg), TPH (33,500 µg/kg), TCE (110,000 µg/kg), PCE (1,200 µg/kg), 1,1,1-TCA (2,900 µg/kg), and polychlorinated biphenyls (PCBs) (80,000 µg/kg).

Groundwater monitoring has been conducted at the site since 1985 and continues to the present. During investigations, three contaminant plumes have been identified underlying the site. The plumes consist of hexavalent chromium, BTEX, and chlorinated solvents. The maximum hexavalent chromium detection (120 mg/L) was reported in 1989. Between 1989 and 2004, hexavalent chromium concentrations have declined through time (3.7 mg/L in 2004). TCE has been detected in all onsite monitoring wells and appears to be the primary VOC of concern. Between 1995 and 2004, the maximum TCE concentration was 1,300 µg/L. Sampling results from the October 2006 sampling event are as follows: 19,000 µg/L, hexavalent chromium; 1100 µg/L, TCE; 320 µg/L, 1,1-DCA; 270 µg/L, 1,2-DCA; 61 µg/L, 1,1-DCE; 75 µg/L, cis-1,2-DCE; 23 µg/L, PCE; and 74 µg/L, chloroform; 37 µg/L, carbon tetrachloride; 79 µg/L, methylene chloride. The following contaminants were also present: 1,1,1-TCA, chlorobenzene, and Freon 11. No PCBs were detected. Data for the contaminant 1,4-dioxane, commonly associated with 1,1,1-TCA contamination, were unavailable for review, most likely because this contaminant was not analyzed during historical investigations.

5.5.1.3 Techni-Braze, Inc., 11845 Burke Street, Santa Fe Springs, California

The site summary presented below is based on information provided in Levine-Fricke, Inc., 2006; Mabbett, Cappacio and Associates, Inc., 1991; and TerraVac, 1995.

Bodycote Thermal Processing Inc., formerly known as Techni-Braze, is located at 11845 Burke Street, Santa Fe Springs, California. This facility has been in operation since at least 1966 and continues to maintain operations. The facility conducts the following services: heat treating and brazing, metals testing, and metallurgical coatings. Hazardous wastes produced at the facility include acids, waste oil, PCE, and acetone.

Four site investigations conducted between 1991 and 2004, as well as onsite groundwater monitoring in 2005, have confirmed soil and groundwater contamination. A 1991 preliminary site investigation concluded that shallow soil and underlying site contamination had occurred on the site, and was likely related to spills or leaks from storage or of operations using PCE. The investigation revealed TPH and PCE contamination in soil, at maximum concentrations of 4,700 mg/kg and 92,000 µg/kg, respectively. A 1995 investigation found evidence of groundwater contaminated with VOCs, primarily PCE, which was detected at maximum concentrations of 14,000 µg/L and 11,000 µg/L in onsite monitoring wells. PCE extends offsite to the southeast, toward Burke Street, at decreasing concentrations. The contaminant 1,1-DCE was present at a maximum concentration of 91 µg/L; it is likely a degradation

product of PCE. In 1995, the maximum concentration of TCE in groundwater was 52 µg/L; TCE at this site may be the degradation product of PCE. As of November 2006, a preliminary remediation plan was agreed upon, which includes SVE for removal of soil contamination and an oxidation process for in situ groundwater treatment. The site remedial activities are subject to oversight by the Los Angeles Regional Water Quality Control Board.

5.5.1.4 Pilot Chemical Corporation, 11756 Burke Street, Santa Fe Springs, California

The site summary presented below is based on information provided in CH2M HILL, 1986; Kleinfelder, 1991; McLaren/Hart, Inc., 1998; and LARWQCB, 2001.

Pilot Chemical Corporation is located at 11756 Burke Street, Santa Fe Springs, California. The facility began operations in 1952 and is currently active. Operations have included the manufacturing of detergents and emulsifiers. Chemicals used in the manufacturing process included long-chain sulfanated hydrocarbons such as linear alkyl benzene sulfonate and dixilyl-sulfone.

Fuel hydrocarbons (toluene, ethylbenzene, and xylenes) were found in soil during a 1991 investigation. Acetone and 1,2-DCA also were detected in soil at maximum concentrations of 140 mg/kg and 1.0 mg/kg, respectively. A 1998 investigation revealed groundwater contamination of xylenes, toluene, ethylbenzene, and 1,2-DCA. Maximum concentrations were 38,000 µg/L, 61,000 µg/L, 9,000 µg/L, and 7,000 µg/L, respectively.

Pilot Chemical is in the process of cleaning up the soil, and at a minimum, monitoring the groundwater. The case remains open as a Leaking Underground Fuel Tank (LUFT) site, as well as an open SLIC (Spills, Leaks, Investigation and Cleanup Cost Recovery) site.

5.5.1.5 Angeles Chemical Co., Inc., 8915 Sorensen Avenue, Santa Fe Springs, California

The site summary presented below is based on information provided in Angeles Chemical Co., Inc., 2006; Blakely, 2004; and DTSC, 2007.

The former Angeles Chemical Company site (Angeles) is located at 8915 Sorensen Avenue, Santa Fe Springs, California, and consists of approximately 1.8 acres of land. Greve Financial Services, Inc. is the current owner of the Angeles site. It has not operated any business at the site and is currently leasing the property for use as a vehicle tow yard.

Angeles Chemical Company operated as a bulk chemical repackaging facility at the property from 1976 to 2000. Bulk items were stored in 34 USTs, which were later decommissioned and slurry-filled. Chemicals used and stored at the facility included the following: acetone, methylene chloride, 1,1,1-TCA, PCE, methyl ethyl ketone (MEK), toluene, xylene, kerosene, diesel, and unleaded gasoline.

Site investigations conducted from 1990 to 1997 revealed that VOCs were present in soil at detectable concentrations. These include acetone, benzene, 1,1-DCA, 1,1-DCE, MEK, methyl isobutyl ketone (MIBK), toluene, 1,1,1-TCA, PCE, and xylenes. Soil gas investigations conducted in 2000 confirmed the presence of VOCs in soil vapor beneath the site. Free product was reported floating at several onsite monitoring wells near the southern boundary of the site. The product is a light nonaqueous phase liquid (LNAPL) consisting of petroleum hydrocarbons with smaller concentrations of VOCs. In 2005, the maximum concentration of TPH in groundwater was 238,000 µg/L; 25,000 µg/L of BTEX; 1,080 µg/L

of PCE; 4,710 µg/L of 1,1,1-TCA; 2,160 µg/L of TCE; 4,050 µg/L of vinyl chloride; 33,000 µg/L of 1,1-DCA; 9,200 µg/L of 1,1-DCE; 10,600 µg/L of cis-1,2-DCE; 24,100 µg/L of 1,4-dioxane; 10,000 µg/L of methylene chloride; 18,000 µg/L of MEK; and 9,440 µg/L of acetone.

5.5.1.6 McKesson Corporation, 9005 Sorensen Avenue, Santa Fe Springs, California

The site summary presented below is based on information provided in Blakely Environmental Investigations, Inc., 2002; GeoSyntec, 2005a and 2005b; and DTSC, 2007.

The former McKesson facility (McKesson) is located at 9005 Sorensen Avenue, Santa Fe Springs, California. The site consists of approximately 4.3 acres in a heavily industrialized area. To the north, the former Angeles facility is adjacent to the McKesson property. McKesson operated a bulk chemical repackaging facility at this site from 1976 to 1986. Operations ceased in 1986 and the site has remained inactive since that time. Twenty-one USTs were removed in 1996. Some structures still remain at the site. Solvent mixing operations between 1977 and 1986 resulted in a waste stream of a minimum of 1,500 gallons of solvent wastewater per day discharged into an unlined ditch. Chemicals historically used, stored, or mixed at the site include VOCs, glycols, acids, and petroleum hydrocarbons.

A SVE system has been in operation since 1994 to treat soils in the area of the former USTs. A conventional groundwater extraction system has been in operation since 1996 as an interim remedial measure. The interim measure was designed to capture contaminated groundwater at the site and prevent further downgradient migration of contaminants from the McKesson facility.

Analytical data from a 1990 investigation indicate the presence of VOCs and petroleum hydrocarbons beneath the McKesson site. Both soil and groundwater contained 1,1-DCA, methylene chloride, PCE, toluene, 1,1,1-TCA, TCE, acetone, MEK, 2-butoxyethanol (butyl cellosolve), and xylenes. In addition, soil samples contained 2-ethoxyethanol acetate (cellosolve acetate). Groundwater also contained 1,2-DCA, 1,1-DCE, and isopropanol.

The contribution of chlorinated compounds from the property to the groundwater has been characterized in 2004 and 2005. TCE concentrations upgradient and downgradient of the property are 10 to 170 µg/L and 46 to 660 µg/L, respectively. PCE concentrations upgradient and downgradient of the property are 17 to 160 µg/L and 43 to 2,300 µg/L, respectively. Concentrations of 1,1,1-TCA, vinyl chloride, cis-1,2-DCE, 1,1-DCE, and 1,1-DCA are also higher downgradient than upgradient. Concentrations of freons in upgradient and downgradient samples are similar. While freons are considered signature compounds for the former Omega facility, 1,1,1-TCA is considered a signature compound for the McKesson facility. Although 1,1,1-TCA is present at and near the former Omega property, it is generally absent in the area upgradient of the former McKesson and Angeles sites.

A summary of water quality results from the first quarter 2007 groundwater sampling event is as follows: 3.7 to 100,000 µg/L for PCE; 1 to 43,000 µg/L for TCE; 1 to 670,000 µg/L for 1,1,1-TCA; 0.53 to 19,000 µg/L for cis-1,2-DCE; and 1.6 to 130 µg/L for vinyl chloride.

5.5.1.7 Site A, 12128 Burke Street, Santa Fe Springs, California

The site summary presented below is based on information provided in McLarren, 1990, Converse Environmental, 1991, Dames & Moore, 1992; and Dames & Moore, 1995 and 1996.

Site A is located at 12128 Burke Street, Santa Fe Springs, California. Site A and several surrounding properties collectively comprised a 40-acre new car preparation facility from 1965 to 1988. At least five 10,000 gallon USTs, four 3,000 gallon USTs, two 550 gallon USTs, five 550 waste oil tanks, seven concrete clarifiers ranging in size from 500 to 5,000 gallons, seventeen hydraulic hoists, seven service pits, several fuel pump islands, three car washes, three spray booths, and a paint spill area were installed and operated at the 40-acre site, with four of the seven clarifiers located at Site A. The operator began removing these structures in 1985 and completed the removal of the last USTs in October 1988. Operations included painting, tune-up, cleaning and waxing, body work, and car washing.

This facility used PCE, TCE, methyl-ethyl-ketone, acetone, and metals. Elevated concentrations of 1,1-DCE, PCE, TCE, and Freon 11 were discovered in most wells at the 40-acre site. Petroleum hydrocarbons, 1,1-DCE, PCE, and TCE were found in soil samples collected at the facility. Groundwater sampling at the 40-acre site, conducted between November 1990 and January 1991 found 1,1-DCE, PCE, TCE, 1,1,1-TCA, and Freon 11 at maximum concentrations of 1,400 µg/L, 520 µg/L, 500 µg/L, 14 µg/L, and 370 µg/L, respectively. During 1990 and 1991 sampling, the concentrations of chlorinated hydrocarbons in groundwater samples taken from wells downgradient of the former clarifiers at Site A were typically higher compared to the concentrations in samples collected upgradient. The contamination in soil and the elevated concentrations of PCE, TCE, and 1,1-DCE suggest that Site A is a source of groundwater contamination by these compounds.

5.5.2 Non-Chlorinated VOCs Source Areas

5.5.2.1 Former CENCO Refinery, 12345 Lakeland Road, Santa Fe Springs, California

The site summary presented below is based on information provided in WRD, 2004.

The CENCO Refinery property is approximately 55 acres in size and is located at 12345 Lakeland Road, Santa Fe Springs, California. The site is bordered to the north by Florence Avenue, to the south by Lakeland Road, and to the east by Bloomfield Avenue. The site operated as an oil refinery from the 1930s until July 1995. Prior to the 1930s, the site was an oil field consisting of production wells and unlined sumps. The refinery is not currently operating; however, many of the structures related to the former oil refinery operations remain onsite.

Previous refining operations included processing crude oil into several grades of fuel including kerosene, leaded gas and aviation fuel, unleaded gas, jet fuel, high and low sulfur diesel, fuel oil, and petroleum coke. Soil and groundwater beneath and in proximity to the site have been impacted by past site operations.

Approximately 5,100 cubic yards (yd³) of petroleum hydrocarbon saturated soils have been removed from the site. In 1997, the Regional Board issued a No Further Action letter regarding soil contamination. Free-product recovery began in 1990. As of March 1995, approximately 520 gallons of petroleum hydrocarbon have been removed from the shallow aquifer.

Groundwater monitoring has been conducted onsite since August 1986. Free product has been detected in several monitoring wells at the site. The product is an LNAPL consisting primarily of diesel fuel and gasoline range hydrocarbons. Contaminants of concern reported in groundwater include total petroleum hydrocarbons, gasoline range organics (TPH-g), diesel, BTEX compounds, and MTBE. Benzene, TPH-g, and MTBE have been detected as high as 12,000 µg/L, 28,000 µg/L, and 14,000 µg/L, respectively. Chlorinated VOCs, such as PCE, TCE, 1,1-DCA, 1,1-DCE, cis-1,2-DCE, and others, have been detected at concentrations in exceedance of their MCLs. In February 2007, the highest PCE and TCE concentrations were 92 µg/L and 140 µg/L, respectively. These maximum detections were reported in well MW-603, which is located on the west side of the Metropolitan State Hospital, just east of Norwalk Boulevard. Historical records indicate that there are no known or suspected sources of halogenated VOCs to groundwater from refinery operations.

5.5.2.2 G & M Oil Company, 12559 Lambert Road, Whittier, California

The site summary presented below is based on information provided in Leighton Consulting, Inc., 2004.

The G & M Oil Company is located at 12559 Lambert Road, Whittier, California. The site has historically been used for retail gasoline sales since at least 1965, but its current status is unknown. A release was discovered in 1991. The site is in a State-lead quarterly monitoring program and has 16 wells. BTEX and MTBE contamination were the predominant contaminants detected in soil. MTBE and benzene were detected at elevated concentrations in groundwater. In 2004, MTBE concentrations ranged up to 39,000 µg/L and benzene concentrations up to 32,800 µg/L, and the size of the MTBE and benzene plume was approximately 80 by 100 feet.

The G & M Oil Company is a source of MTBE in groundwater. The MTBE plume is likely commingled with the OU2 plume. The information indicates that the facility is likely not a source of groundwater contamination by chlorinated VOCs.

5.5.2.3 The Santa Fe Springs Oil Field, Santa Fe Springs, California

The extent of the Santa Fe Springs Oil Field and the locations of the oil production wells were obtained from the California Department of Conservation Division of Oil, Gas, and Geothermal Resources (DOGGR) website.

OU2 extends into The Santa Fe Springs Oil Field (Figure 4-8). According to the DOGGR, more than 1,300 oil wells were drilled within the Santa Fe Springs Oil Field. Some of these wells are still producing. Before approximately 1965, non-productive oil wells were destroyed by sealing off the production zone only, while leaving the upper portion of the well casing intact. The details of the well destruction are not available from the DOGGR website; however, hardcopies are available for review in the DOGGR offices.

Contaminants from fuel hydrocarbons and oil recovery additives are likely present throughout the oil field in the shallow subsurface, but may also be present in deeper zones. Further discussion of the likely fate and transport of these deeper contaminants is presented in Section 6.

5.5.2.4 The Oil Field Reclamation Project, Santa Fe Springs, California

The Oil Field Reclamation Project (OFRP) site summary presented below is based on information provided in McLaren/Hart, 1996 and 1998.

The OFRP site is a 272-acre former oil production well field located in Santa Fe Springs, California and is part of the Santa Fe Springs Oil Field. The OFRP site has been in operations since the late 1920s, but is currently under redevelopment. Some production wells still operate. The primary contaminant of interest is crude oil. The crude oil consisted of a variety of organic compounds, including TPH (gas and diesel range) and BTEX compounds. The major sources of crude oil in soil and groundwater at the OFRP site are ASTs and sumps that were used during historical oil field development and operation. Lesser amounts may be present from leaking pipelines, surface spills, or USTs.

McLaren/Hart conducted soil and groundwater investigations in 1994 and concluded that BTEX and TPH were the primary contaminants of concern at the site. Phenolic compounds such as creosote and pentachlorophenol also were found to be present in soil. These "wood treating chemicals" were purportedly a result of construction yard operations in an area that was subleased to a construction company named Ugalde.

Based on a 1998 groundwater investigation, benzene, TCE, and PCE were determined to be the most prevalent and highest concentration VOCs detected in groundwater. The main chlorinated VOC plume was parallel to Norwalk Boulevard at the western part of the property (this investigation confirmed the presence of high VOC concentrations in this area, see Figure 5-1). SVOCs, arsenic, and TPH also were detected, but to a lesser degree. McLaren/Hart reported that the TCE and PCE appeared to originate from an off-site upgradient source. This conclusion was supported by McLaren/Hart's solute transport model and the absence of known uses of TCE and PCE from former operations at the OFRP site. The OFRP well location map is included in Appendix N; most of the wells were destroyed.

TCE, PCE, and 1,1-DCE were also detected in OFRP well MW-21 (still existing, see Figure 4-5). McLaren/Hart concluded that the contamination has migrated into this area from an unknown upgradient source.

McLaren/Hart concluded that benzene detected at OFRP well MW-22 located south-southeast of the intersection of Telegraph Road and Santa Fe Springs Road (Appendix N) migrated into this area from the Ashland Chemical Company.

High concentrations of vinyl chloride were detected in two OFRP wells (MW-9, 150 µg/L; MW-10, 250 µg/L) located southwest of the intersection of Telegraph Road and Santa Fe Springs Road in 1994. Groundwater samples from two upgradient OFRP wells (MW-12 and MW-13) tested non-detect at high detection limits due to the presence of fuel hydrocarbons. Vinyl chloride was also detected in soil samples in this area of the OFRP site. McLaren/Hart concluded that the vinyl chloride contamination may have originated from an upgradient source or from the OFRP site activities.

Based on the historical information, the OFRP site is considered to be the source of fuel hydrocarbons and of vinyl chloride.

5.5.2.5 Former Unocal Corporation Facility, 9645 South Santa Fe Springs Road, Santa Fe Springs, California

The site summary presented below is from Environmental Equalizers, 1998.

The Former Unocal Corporation District Office is located at 9645 South Santa Fe Springs Road, Santa Fe Springs, California. This facility is located within an area where oil production, storage, refining, and other chemical manufacturing have occurred for over 75 years. This facility contained a leaking underground gasoline storage tank which contributed fuel hydrocarbons to soil and shallow groundwater beneath the site. An SVE system was installed in 1992 which processed over 90,000 pounds of fuel hydrocarbons. Post-sampling of soils indicated that at least 85 percent of the fuel was successfully removed. This report indicates the possibility of an off-site source upgradient from the property which may be contributing to benzene concentrations at the site. Maximum concentrations from January 1998 are as follows: benzene, 74 µg/L; toluene, 2 µg/L; ethylbenzene, 5.4 µg/L; xylenes, 25 µg/L; and MTBE, 39 µg/L.

5.5.3 Other Sites

5.5.3.1 Site B, 8921 Dice Road, Santa Fe Springs, California

The site summary presented below is based on information provided in Kleinfelder, 1989; Thorne Environmental, Inc., 1989; and BASF Wyandotte Corp., 1981.

The facility located at 8921 Dice Road, Santa Fe Springs, California has produced, stored, and shipped chemical specialties products since 1954. The chemical specialties were used for institutional, laundry, food processing, dairy, agriculture, metals, and pulp and paper industries.

From 1954 to 1974, sodium hydroxide, sodium carbonate, phosphoric acid, and small amounts of ethyl and isopropyl alcohol were disposed of by injection wells onsite at a volume of 200 gallons per day. It is estimated that more than one million gallons of hazardous waste was injected into the subsurface between 1954 and 1974. From 1975 to 1980, a wastewater neutralization system was built. Alkalies and non-chlorinated alkali cleaners were used to adjust the pH of wastewater; alkalinity was neutralized using sulfuric acid. From 1980 to 1984, waste was either neutralized onsite or shipped offsite for disposal. A hazardous waste storage permit was issued in 1984. From 1984 to 1989, all waste was shipped offsite for disposal. The RWQCB granted site closure in April 2000.

Maximum concentrations measured in groundwater in December 1989 are as follows: chloroform of 5 µg/L; 1,1,-DCA of 46 µg/L; 1,1-DCE of 230 µg/L; cis-1,2-DCE of 58 µg/L, PCE of 130 µg/L; 1,1,1-TCA of 300 µg/L; 1,2-dichloropropane of 550 µg/L TCE of 260 µg/L, and Freon 11 of 3 µg/L. The concentration of 1,2-dichloropropane is two orders of magnitude higher than the concentrations detected in samples from all Omega wells (Table 5-5). Although 1,4-dioxane data for this site are not available, the presence of 1,4-dioxane contamination is suspected due to the presence of high concentrations of 1,1,1-TCA. The 1,1,1-TCA contamination is commonly linked with 1,4-dioxane contamination since 1,4-dioxane is used as a stabilizer for 1,1,1-TCA.

The presence of 1,1,1-TCA and other VOCs indicate that Site B is a possible source of 1,1,1-TCA, PCE, TCE, 1,2-dichloropropane, 1,1-DCA, 1,1-DCE, and cis-1,2-DCE contamination.

5.5.3.2 Site C, 9120-9160 Norwalk Boulevard and 11925-11933 Los Nietos Road (aka 9100 Norwalk Blvd.) in Santa Fe Springs, California

The site summary presented below is based on information provided in URS, 2003 and RWQCB, 1999.

Site C is located at 9120-9160 Norwalk Boulevard and 11925-11933 Los Nietos Road in Santa Fe Springs, California. Analytical results from this location show VOCs and metals above their appropriate MCLs. This site is a Spills, Leaks, Investigations, and Cleanups (SLIC) Program site that has reported releases of metals and VOCs at unknown dates. This facility is voluntarily undergoing annual groundwater monitoring.

Underground storage tanks were removed and soils contaminated with TPH, VOCs (PCE), and metals were excavated in 1988. The greater part of VOC contamination in groundwater beneath the site was found to have originated off-site. Site C is a possible source of chromium contamination in groundwater because chromium was present in the excavated soils.

In 2003, the maximum VOC detections included PCE at 41 µg/L, TCE at 73 µg/L, 1,1,1-TCA at 27 µg/L, 1,1-DCA at 180 µg/L, and 1,1-DCE at 330 µg/L. Historically, 1,1-DCE concentrations ranged up to 1,030 µg/L. The highest VOC concentrations in groundwater are found in an upgradient monitoring well in the eastern portion of the property, indicating the contamination may be migrating to Site C from off-site sources. Phibro-Tech and Site B are located upgradient of Site C; Pilot Chemical Company and Site F are located farther upgradient.

5.5.3.3 Modine Manufacturing Company, 12252 East Whittier Boulevard, Whittier, California

The site summary presented below is based on information provided in The Earth Technology Corp., 1990; and Weston, 2003.

Modine Manufacturing Company (Modine) is located at 12252 Whittier Boulevard, Whittier, California, and has manufactured and painted automotive radiators since 1950. Modine is a hazardous waste generator of waste oil, lead-contaminated water and soil, and paint chips.

An Environmental Closure Audit dated May 1987 stated that trichloroethane (TCA) was among chemicals used at the facility. The audit also stated that a 7,500-gallon UST, formerly used to store solvents for paint dilution, was removed in 1985 and no soil contamination was identified. However, the documents reviewed indicated that soil samples were not analyzed for VOCs, only for SVOCs.

Paint waste was stored in an onsite "landfill" between 1950 and 1960. The waste was excavated in 1989. Closure was approved by the LACDHS in January 1991.

Soil contaminated by metals and oil was excavated. Soil contamination by VOCs is unknown. TCE and PCE detections in groundwater ranged from 13 to 42 µg/L, respectively, in 1989. Trace amounts of Freon 11 and toluene were also detected. This contamination

5.7.11.3 1,1-Dichloroethane

Detections for 1,1-dichloroethane (Figure 5-24) extend from the Omega property to well MW27. Concentrations decrease quickly downgradient of the Omega property. Much higher concentrations at the former Angeles Chemical (34,100 µg/L) and former McKesson Chemical (6,600 µg/L) facilities indicate they are sources of 1,1-DCA contamination. At Site C the concentrations are up to 180 µg/L. This facility is directly downgradient of the Phibro-Tech, Inc. facility which reports results of up to 320 µg/L indicating that it is a source of 1,1-DCA contamination. The Earl Manufacturing facility is also a source of 1,1-DCA with concentrations of up to 180 µg/L.

5.7.11.4 Freon 12

Detections of Freon 12 (Figure 5-25) extend from wells MW14 to MW29. Detected concentrations in the EPA wells are all below 3 µg/L. Results from the former McKesson Chemical facility are reported as non-detectable, but at a very high reporting limit.

5.7.11.5 1,1,1-Trichloroethane

Detections of 1,1,1-TCA (Figure 5-26) extend from the Omega property to well MW21. The concentrations are high at the Omega property (2,200 µg/L) and decrease rapidly with distance downgradient of the Omega source area. Much higher concentrations at the former Angeles Chemical (4,710 µg/L) and McKesson Chemical (670,000 µg/L) facilities indicate they are sources of 1,1,1-TCA. The 1,1,1-TCA concentrations increase from the Phibro-Tech, Inc. (2.2 µg/L) property to Site C (27 µg/L) property located directly downgradient of Phibro-Tech and Site B, indicating that Site B is a possible source of 1,1,1-TCA in this area; it has concentrations of up to 300 µg/L in groundwater. This contamination was intercepted at well MW17A which has a detected concentration of 17 µg/L.

5.7.11.6 Vinyl Chloride

Vinyl chloride is present in groundwater in several areas at and near OU2 (Figure 5-27). There were only seven detections of vinyl chloride in the Omega wells during the July-August 2007 sampling. Only two of the detections exceeded the MCL for vinyl chloride of 0.5 µg/L: 0.72 µg/L at MW27B and 0.58 µg/L at MW17A. Historically, there were a total of 12 detections of vinyl chloride in the Omega wells with the highest concentration of 4 µg/L found at MW9A. The highest concentration detected at OU1 was 2.1 µg/L at OW1A (Table 5-1). The vinyl chloride present in groundwater at OU1 is likely a degradation product. The Omega property is not a significant source of vinyl chloride. However, there are several sources of vinyl chloride at and near OU2.

The Angeles Chemical Co. and McKesson Corporation facilities reported the maximum concentrations of 4,050 µg/L (in 2005) and 130 µg/L (in 2007), respectively. Vinyl chloride is found downgradient of this source area at MW17, MW26, and MW27, but the continuity of the plume is uncertain.

The OFRP site is a source of vinyl chloride with concentrations up to 250 µg/L in 1994. The historical OFRP vinyl chloride plume was outside OU2. The current extent of this plume is not known.

**DRAFT REMEDIAL INVESTIGATION REPORT
OMEGA CHEMICAL CORPORATION SUPERFUND SITE OPERABLE UNIT 2
LOS ANGELES COUNTY, CALIFORNIA
VOLUME 2**

EPA Contract No. EP-S9-08-03
EPA Task Order No. 038-RICO-09BC
CH2M HILL PROJECT NO. 386743

Prepared for
U.S. Environmental Protection Agency
Region 9
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March 2009

- The maximum cis-1,2-DCE of 300 µg/L was found at well MW17A. Three separate zones of cis-1,2-DCE contamination above MCL (6 µg/L) were identified, indicating the possibility of multiple sources.
- The maximum chloroform detection of 170 µg/L was found at well OW5. Chloroform is present at low concentrations, generally less than 1 µg/L, throughout OU2. The plume extends approximately from well MW24 to just beyond well MW23.
- The maximum acetone detection of 26 µg/L was found at well MW24A. Detections for acetone extend from wells MW24 to MW27, indicating a possible source upgradient of well MW24.
- The maximum carbon tetrachloride detection of 4.7 µg/L was found at well MW2. Detections for carbon tetrachloride extend from the Omega property to well MW20.
- The maximum 1,1-DCA detection of 170 µg/L was found in well MW17A. Detections for 1,1-DCA (Figure 5-24) extend from the Omega property to well MW27. Concentrations decrease quickly downgradient of the Omega property. Concentrations are much higher at AMK.
- The maximum Freon 12 detection of 3.6 µg/L was found at well MW15. All other detections in EPA wells are below 3 µg/L. Detections of Freon 12 extend from wells MW14 to MW29.
- The maximum 1,1,1-TCA detection of 2,200 µg/L was found at well OW1A. Detections of 1,1,1-TCA extend from the Omega property and quickly decrease to well MW21. High concentrations of 1,1,1-TCA are found at AMK, Site B, and Site C.
- Several plumes of fuel hydrocarbons found at OU2 are associated with known sources. The full extent of the fuel hydrocarbons at OU2 is not known.

8.2.4 Sources of Contamination

The former Omega Chemical facility is the main source of groundwater contamination at OU2. The Omega plume is over 4 miles long, and because it flows under a densely developed commercial-industrial area, there are additional facilities whose release of hazardous substances have reach groundwater and become commingled with the Omega contamination. Other sources of groundwater contamination at OU2 have been identified based on information obtained from file reviews and findings from field investigations. This investigation may have not identified all sources of contamination within the OU2 area. EPA may conduct additional investigations in the future.

Contaminants that have impacted groundwater at concentrations exceeding their respective screening levels are listed. The following list of source areas occasionally identifies a source area with reference to the name of a facility that operated and/or continues to operate on the property within such source area. This list is not intended to include all entities that may have contributed to such source areas.

- Angeles Chemical Company (8915 Sorensen Avenue, Santa Fe Springs) is a source of PCE, TCE, vinyl chloride, 1,4-dioxane, 1,1,1-TCA, 1,1-DCA, 1,1-DCE, cis-1,2-DCE, methylene chloride, MEK, acetone, and BTEX.



Department of Toxic Substances Control



Winston H. Hickox
Agency Secretary
California Environmental
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1011 N. Grandview Avenue
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Gray Davis
Governor

MEMORANDUM

TO: Ryan Kinsella, M.S.
Project Manager
Site Mitigation and Cleanup Operations Branch
Glendale Office

FROM: Sanford L. Britt, RG, CHG *SLB*
Hazardous Substances Engineering Geologist
Glendale Geological Services Unit

CONCUR: Craig Christmann, RG *CC*
Sup. Hazardous Substances Engineering Geologist I
Glendale Geological Services Unit

DATE: February 15, 2002

SUBJECT: Quarterly Ground Water Monitoring Report
[4th Quarter 2001 monitoring period]
undated, received by DTSC December 12, 2001
Former Angeles Chemical Company Facility
Santa Fe Springs, CA

PCA: 19050 Site Code: 306001 Phase: 19

At your request, the Glendale Geological Support Unit (GSU) prepared this memorandum to provide comments on the Quarterly Groundwater Monitoring Report identified above for the former Angeles Chemical Company facility (ACC).

Geological Support Unit Staff has several serious concerns regarding the presentation of data and conclusions in the report. General comments and requests regarding future quarterly ground water monitoring reports are included below. These requests are designed to facilitate our review and to promote consistency of the ground water reporting process for this site. Specific Comments to the referenced monitoring report are included following the General Comments.

General Comments:

1. In general, conclusions presented in quarterly ground water monitoring reports should be limited to those specific to that monitoring period. The reports can and should include comments on trends in particular wells or results that are unexpected, but should not include conclusions beyond those supported directly by the quarterly ground water monitoring data.
2. As outlined in General Comment #1, conclusions on contaminant sources should be made after more substantial completion of the soil and ground water remedial investigations. It is inappropriate to include conclusions (or allegations) about off-site parties' culpability in a monitoring report, especially before the investigation has made sufficient progress to substantiate these conclusions.
3. Quarterly monitoring reports should be as stand-alone as practical. All supporting historical data is not required to be included, but some tabulated historical data should be included in the report to facilitate review. These data include: chemical testing results; water levels; and well construction details (well depths, screen intervals). When sufficient data are available, hydrographs and historical contaminant concentration graphs should be prepared to demonstrate data trends.
4. The monitoring period represented in all quarterly ground water monitoring reports should be included in the report title. For example, this report should include "Fourth Quarter 2001" in the title.
5. The date of the report should be included in the report, preferably on the report cover page.

GSU comments regarding this report's results and conclusions are included in the Specific Comments below.

Specific Comments:

1. Laboratory method detection limits (MDLs) for several chemical constituents were higher than drinking water maximum contaminant levels (MCLs). For example, the primary MCL for cadmium is 0.005 mg/L while the laboratory MDL was 0.050 mg/L. Similarly, the primary MCL for vinyl chloride is 0.0005 mg/L while the MDL was 0.005 mg/L. In all future monitoring events, the MDL for any VOC or metal should be no higher than the California Department of Health Services drinking water standard for that constituent at the time of sampling (primary standard, secondary standard, or action level, as applicable).
2. Reference is made to the "Gasper[sic]/Hollydale" aquifer in the monitoring report. Based on GSU's interpretation of the CDWR Bulletin 104 (1961) geologic maps, cross-sections, isopach maps, and aquifer surface contour maps, the Gaspur, Gage and Hollydale aquifers may each be present at the site. The Gaspur is part of the Recent age alluvium, the Gage is part of the late Pleistocene age Lakewood Formation, and the Hollydale is part of the early Pleistocene age San Pedro Formation. Each is variable in thickness and lithology in the site area. Based on the Bulletin 104 maps and site geology, it appears the "perched" aquifer is probably the Gaspur and the first saturated zone below the perched zone (at present) is probably within the Gage and/or Hollydale. For future geologic interpretations, a geologist licensed in California should make his/her own independent interpretation based on direct review of the literature and site geologic data. Alternatively, a civil engineer licensed to practice civil engineering in California could take responsible charge of the work if the geologic aspects were ancillary to their practice of engineering.
3. The graphic scale does not match the stated scale on Figures 2, 3, and 5 through 11. Map scale changes caused by significant enlargements or reductions should be corrected to avoid confusing scale discrepancies. The scales indicated on Figures 4 and 12 are not consistent with the other figures. For example, the stated scale on Figure 4 is 1 inch equals 40 feet, and the ground water gradient shown on the figure agrees with this scale. However, the scale is not consistent with the other maps. The distance between MW-6 and MW-2 on Figure 4 is 117 feet using the 1" to 40' scale indicated. On Figure 5, the same distance is 107 feet using the 1" to 40' scale indicated. According to the graphic scale on Figure 5, however, the distance is about 160 feet. On Figure 12, the distance is about 71 feet, using the vertical scale and exaggeration stated on the figure. As stated in Section 2.0 of the report, the wells were surveyed using the California plane coordinate system. Using this survey information, the correct scale should be generated for all of the site maps. This is of particular importance where calculations are based on map scales (e.g. ground water gradient

shown in Figure 4). Once the map scales are corrected, any calculations based on map scales need to be verified.

4. Most of the chemical contour maps show interpretations of site conditions without sufficient information to substantiate the interpretations presented. There is a two hundred foot or more data gap between wells MW-1, -2 and -3, and MW-7. With no intervening ground water data, it is GSU's opinion that connection of these contours across the site is not supported. Additionally, attenuation of contaminants to the east and west of the site has not been confirmed—and should not be presumed. At this time, it is GSU's opinion that ground water data should be presented without contours. When additional monitoring wells are installed on site, there may be sufficient data to contour chemical concentration levels. GSU recommends installation of 3 additional monitoring wells in the central portion of the site, one to the east of MW-1, a first aquifer well near MW-6 (first aquifer below the perched zone), and additional deeper zone wells once the shallow zone is better characterized.
5. Non-detect results are incorrect in all figures where they are presented, since the dilution factor was not used as a multiplier of the laboratory MDL. Therefore, all the non-detect values reported are low by a factor of 5, 10, 25 or 50 at wells MW-7, MW-2, MW-3 and MW-1, respectively. See laboratory results for MDL's and dilution factors.
6. GSU does not concur with interpretation of soil sampling data in the soil profile shown in Figure 12. This information is not discussed in the text of the report until the conclusion section and is not supported with data or reference to previously collected data. The construction of the section is questionable and its location and orientation is not identified on this or any other figure. The vertical exaggeration of the cross section is incorrect and the relative locations of the borings are incorrect (see specific comment #4). Figure 12 shows MW-2 about mid-way between the drainage channel and MW-6. Figure 11 shows MW-2 about twice as far from MW-6 as the drainage channel (location estimated). More importantly however, is that the interpreted 1,1,1-TCA isoconcentrations depicted on the section are not supported by the results shown on the cross-section. For example, no detected results are shown left (south?) of SB-24, yet a relatively complex interpretation of the extent of 1,1,1-TCA in soil is drawn. Similarly, the 1,000 ppb contour to the right (north?) of the unlined channel is drawn between ND (<5 ppb) results in two borings over a distance of 130 feet (or 160 feet, or 175 feet, or 240 feet, depending on which scale is correct). This interpretation is not plausible at any of these scales. Interpretations of soil contamination should be made only after the new round of soil sampling results are complete. Any interpretations should be presented on correctly drawn and scaled maps and/or sections. As discussed in Specific Comment #2, geologic maps and sections should be prepared by, or under the direction of, a qualified geologist experienced in interpretation of

contamination data and licensed by the State of California. Alternatively, a civil engineer licensed to practice civil engineering in California could take responsible charge of the work if the geologic aspects were ancillary to their practice of engineering. The licensed professional responsible for the interpretations shown on the maps and sections should be indicated on the figures. Incidentally, this type of cross-section is not typically presented in a quarterly ground water monitoring report. After being corrected, updated and revised, it would be more appropriately placed in a Remedial Investigation report.

7. The Conclusions section includes several interpretations that are not adequately supported by the sampling results, and they would be better termed hypotheses at this time. While some of these hypotheses are theoretically possible, few data are available at this time to support them. One example hypothesis is that of NAPL transport from the unlined ditch to the area of MW-6. GSU believes it is premature to draw specific conclusions about substantial (hundreds of feet of) lateral contaminant transport in the perched zone without further evidence to support the hypothesis. We recommend that a sampling program be designed to test the hypotheses presented rather than drawing conclusions without presenting supporting evidence. More detail of this example is presented in Specific Comment #9 below.
8. Similarly, GSU recommends that concluding statements correctly reflect supporting documentation. The second paragraph of the conclusions regarding the adjacent McKesson site state that EPA identified "...in 1986 that 1,500 gallons per day of wastewater with approximately 1.5% DNAPL were continuously discharged..." to the unlined ditch. The only document in Appendix C that refers to the quantity "1,500 gallons per day" is a summary letter to EPA identifying that volume of wastewater discharged to the sanitary sewer, not the unlined ditch. Additionally, this waste stream was identified as corrosive waste, not solvent waste. The BEII conclusion quoted above is not supported by the referenced documents and is therefore misleading. Unsupported claims and misleading statements are not acceptable. If these type of statements are made in future reports, DTSC and GSU staff will be forced to refute these statements. Since this is not a good use of State resources, BEII should refrain from making unsupported and/or misleading statements. If supporting documentation exists, it should be included to substantiate claims. If supporting documentation is not presented, then these type of statements should not be presented, or should be clearly identified as hypotheses. It is recognized that the adjacent McKesson site also has serious problems that DTSC is addressing, but case-making is not appropriate in a monitoring report, especially when not adequately supported. Again, it is GSU's opinion that allegations should be suspended until sufficient data are obtained to substantiate them.

9. Paragraphs 3 and 4 of the conclusions state that the unlined ditch south of the ACC site is the source of free phase product in MW-6 and continues to be a continuing source of solvent contamination at ACC. This statement is not substantiated with soil sampling data at concentrations that would indicate residual DNAPL. If free phase product migrated from the unlined ditch to MW-6, residual product would remain along the path. Soil and soil vapor sampling data collected to date does not indicate the presence of a pathway of solvent residual from the south to MW-6. Additionally, MW-6 is not the exclusive point on the ACC site where free product is found. MW-4 also contained free product during the November 2000, and October 2001, monitoring events. The product found at both of these locations is LNAPL, not DNAPL. The LNAPL/DNAPL issue is discussed in paragraph 6 of the BEII conclusions. Specific Comment #11 below contains a discussion of this report's conclusions on the LNAPL/DNAPL issue.
10. Paragraph 5 of the conclusions claims that large and long term releases at McKesson "...can easily diffuse contaminants upgradient of the source." This may be true for free phase contaminants but not generally for dissolved ones. Once the contaminants are dissolved they tend to travel with the prevailing ground water flow. Upgradient diffusion is usually overcome by ground water flow except in fairly stagnant flow regimes. The more likely explanation for higher dissolved contaminant concentrations on the downgradient side of ACC rather than the upgradient side is that the site itself is a source. McKesson has known sources, but their presence, even at higher concentrations, does not preclude ACC as a source.
11. Paragraph 6 of the BEII conclusions seems to be saying that LNAPL (petroleum) is stripping or removing DNAPL constituents from the soil and water on the south of the site. It is not clear to GSU how the ground water test data supports this conclusion, as claimed. If "stripping" is occurring as described, it is not clear why it would occur to some solvents but not others. LNAPL (petroleum) stripping of chlorinated solvents from the vadose zone, even if it did occur, would leave significant residual petroleum hydrocarbons in the soil. Significant petroleum hydrocarbons are not found in the vadose/perched zone on the south side of the site. Moreover, it is not clear why BEII would make this argument, since it has previously argued that McKesson caused a significant portion of the contamination on the ACC site. McKesson has minimal petroleum contamination. The stripping argument implies that the LNAPL is what has caused the migration of DNAPL constituents (chlorinated solvents) to MW-6. If this is what is being argued, then the ACC petroleum contamination caused the migration of chlorinated solvents to MW-6. In other words, ACC caused it's own problem. GSU does not concur with this explanation, but finds it surprising that BEII would make this argument. It is GSU's opinion that there are more likely on-site sources of soil and ground water contamination. Several potential sources are identified in the soil sampling data generated by the UST removals/abandonment (Eremco, 1999, 2001).

Additionally, previous soil sampling data along the north rail spur show sources in this area (SCS, 1994). GSU recommends a soil sampling program to locate and delineate the sources. The approved soil vapor sampling program, when completed, will provide additional information to help choose appropriate soil sampling locations. Soil sampling in the unlined ditch may provide more definitive information regarding whether the soil there was impacted by NAPL's and whether the ditch is a continuing source of VOC contamination. Soil sampling in other areas of the Angeles site may also help to define on-site source areas for petroleum and solvent contamination in the soil, soil vapor, and ground water.

12. The last paragraph of the conclusions states that biodegradation is occurring at the Angeles site. GSU agrees that biodegradation may be occurring, but not necessarily by the mechanism presented. Additionally, this paragraph argues that lack of 1,1,1-TCA in MW-7 supports 1) an absence of migration of parent VOCs to the first aquifer and 2) partitioning of parent products into the LNAPL. GSU believes it is more likely that the reason lack of parent products in MW-7 is because some form of biodegradation has occurred, rather than the partitioning described. GSU believes that stripping or partitioning of parent products into the LNAPL, leaving exclusively daughter products behind to migrate to ground water, is not a plausible explanation for contaminant fate at the site. As follows, GSU believes the LNAPL on site, with its constituent halogenated VOCs, remains a source for continued releases to ground water, rather than an agent acting to remove parent HVOC products from the soil and semi-saturated perched zone.
13. The Recommendation section of the report advocates continued monitoring and feasibility study for enhanced bioremediation. Continued monitoring on the south side of the site by itself is not sufficient. Further investigation is required. GSU believes that the study of bioremediation and other alternatives for site remediation should be part of the ground water RI/FS.
14. Soil sampling should be proposed on the south side of the site or in the unlined ditch to substantiate (or discount) claims that the ditch is a possible source area. Other source areas are indicated based on previous soil sampling and soil vapor surveys. Source areas along the north rail spur, spill drains, and UST's need to be further investigated.
15. GSU recommends that a product recharge study be commenced to determine if product removal could be a practical interim remedial measure. Product removal should be conducted daily for at least one week to determine the product recharge rate and any attenuation during the study period. Product recovery should be instituted at an optimal interval based on the recovery study. Measurements during product recovery should

include product thickness, method of removal, volume removed per removal event, and total volume removed. Product recovery should continue until free product can no longer be effectively removed.

References:

California Department of Water Resources (CDWR), 1961, Bulletin 104, Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A, Ground Water Geology.

EREMCO, 1999, Underground Storage Tank Removal Report and Abandonment in Place, Dated June 3, 1999.

EREMCO, 2001, Tank Mitigation Report, Dated August 19, 2001.

SCS Engineers, 1994, Remedial Investigation Report, Angeles Chemical Company Site, dated August 1994.

Questions regarding this memo should be directed to Mr. Sandy Britt by contacting him at 818-551-2130 or sbritt@dtsc.ca.gov.

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C104727

NEW CONSTRUCTION

PERMIT FOR INDUSTRIAL WASTEWATER DISCHARGE

SANITATION DISTRICTS OF LOS ANGELES COUNTY

2020 Beverly Blvd., Los Angeles, Calif. 90057

John D. Parkhurst, Chief Engineer and General Manager

PERMIT NO.

378

COUNTY SANITATION DISTRICT

OF LOS ANGELES COUNTY

1955 WORKMAN MILL ROAD

P. O. BOX 4398

WHITTIER, CALIFORNIA 90607

RECEIVED

MAR 17 1975

PROJECT PLANNING AND
POLLUTION CONTROL DIVISION

APPLICATION IS HEREBY MADE BY

McKesson Chemical Company

03 (Mailing Address) 9040 Telegraph Road, Suite 301, Downey, California 90240
 (STREET) (CITY) (STATE) (ZIP)

07 (OWNER, TENANT, ETC.)
 Owner

09 (Street) 9005 Sorensen Avenue (City) Santa Fe Springs (Zip) 90670
 PRINT (ADDRESS OF PROPERTY PRODUCING WASTEWATER DISCHARGE)

Assessors Map Book No. 3393 Page No.* 7 Parcel No.* 6
 (LEGAL ADDRESS OF PROPERTY PRODUCING WASTEWATER DISCHARGE)

12" SEWER MAIN IN SORENSEN AVE.
 PRINT (LOCATION OF POINT OF WASTEWATER DISCHARGE TO SEWERAGE SYSTEM)

for a Permit for Industrial Wastewater Discharge to the sewerage system.

13 Type of Industry* Chemical Repackaging M, 17 5161 (Chemicals & Allied Products)
 (GENERAL DESCRIPTION) (FEDERAL SIC NOS.)

19 Number of Employees (Full Time)* 20 (Part Time)*

21 Raw Materials Used* Chemical Solvents & Corrosives (See attached list)
 (GENERAL DESCRIPTION - ADD ADDITIONAL SHEETS AS NEEDED)

Products Produced Chemical Solvents & Corrosives (See attached list)
 (GENERAL DESCRIPTION - ADD ADDITIONAL SHEETS AS NEEDED)

Wastewater Producing Operations Cleaning of corrosive commodity containers (drums & Carboys)

(FULL DESCRIPTION - ADD ADDITIONAL SHEETS AS NEEDED)

31 Time of Discharge - * 8:00 AM/PM to 5:00 AM/PM, Days per Week * M T W Th F Sa Su
 (WORKING DAY - CROSS OUT AM OR PM) (CIRCLE DAYS)

* Wastewater Flow Rate* 600 AA (Gallons Per Day)

Constituents of Wastewater Discharge Wastewater discharge will consist of neutralized
 washwater from the washing of containers (Approx. analysis attached).
 (GENERAL DESCRIPTION - ATTACH CHEMICAL ANALYSES RESULTS TO THIS APPLICATION)

Person in company responsible for industrial wastewater discharge:

41 W.B. Westrope Regional Engineer (213) 869-2481
 PRINT (NAME) (POSITION) (TELEPHONE NUMBER)

I affirm that all information furnished is true and correct and that the applicant will comply with the conditions stated on the back of this permit form.

Date 24 January, 19 75

Signature for Applicant W.B. Westrope
 (COMPANY ADMINISTRATIVE OFFICIAL) (NAME)

Regional Engineer
 (POSITION)

Approved by City or County Official

Approved by Sanitation Districts of Los Angeles County

Date 5/27/75

Date June 18, 1975

For Dept. of County Engineers ☐

John D. Parkhurst, Chief Engineer and General Manager

City of Santa Fe Springs ☒

Name Gordon H. Williams

Position Asst. C. E. II

by Alfredo C. Reyes

Position Plan Eval Engr

Note: A permit fee may be required by the local City or County Agency.

This form when properly signed shall be a valid permit unless suspended or revoked.

RETURN THIS COPY TO APPLICANT WHEN APPROVED

BEII-B00026145

INDUSTRIAL WASTE SEWER DISPOSAL
CONDITIONS AND LIMITATIONS

1. The maximum flow rate to the sewer shall be 20 gpm.
2. Liquid industrial wastes not acceptable for discharge into the sanitary sewer and any water soluble wastes shall be stored in leakproof containers pending transportation to a legal place of disposal. The permittee shall certify the material, source, quantity, and final place of disposal for these wastes by signing Waste Haulers Reports. The signed original of this report shall be forwarded as indicated thereon. An "Industrial Waste Haulers Report" form is attached.
3. Waste disposal operations shall be conducted in such a manner that no nuisance is created.
4. Representatives of governmental agencies concerned with the disposal of industrial waste shall be permitted access at any reasonable time to take samples of wastes and inspect operations.
5. The permittee shall secure written approval from this Department before making any additions or modifications which may affect the quantity, quality, or method of disposal of waste materials.
6. This permit is subject to suspension or revocation if conditions exist which would justify denial of a permit or if permittee fails to correct unsatisfactory conditions.

RG-rz 8
2-73

**HALEY &
ALDRICH**

**REMEDIAL INVESTIGATION REPORT
FORMER ANGELES CHEMICAL
COMPANY**

EPA ID NUMBER CAD 063837520

28 August 2008

**REMEDIAL INVESTIGATION REPORT
FORMER ANGELES CHEMICAL
COMPANY**

EPA ID NUMBER CAD 063837520

28 August 2008

Submitted To:

Department of Toxic Substances Control
Southern California Cleanup Operations Branch
5796 Corporate Avenue
Cypress, CA 90630

On Behalf Of:

Greve Financial Services Inc.
19130 Figueroa Street
Gardena, CA 90248

Prepared By:

Clean Soil, Inc.
23811 Washington Avenue C-110, Suite 241
Murrieta, CA 92562
(951) 677-2111

and

Haley & Aldrich, Inc.
3700 State Street, Suite 350
Santa Barbara, CA 93105
(805) 563-8600

REMEDIAL INVESTIGATION REPORT

Former Angeles Chemical Company

Submitted to:

Department of Toxic Substances Control
Southern California Cleanup Operations Branch
5796 Corporate Avenue
Cypress, CA 90630




Prepared by:



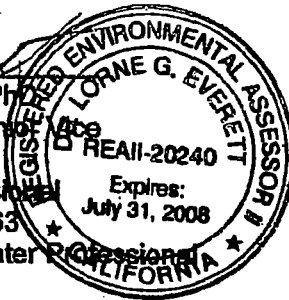
Mark Slatten, RG, CEG
CEO/Principal Scientist
Clean Soil, Inc.

Date

08-28-08

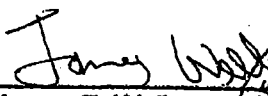


Lorne G. Everett, PhD
Chief Scientist, Senior Vice President
Registered Professional Hydrogeologist #863
Certified Groundwater Professional #170735
California Registered Environmental Assessor II #720240

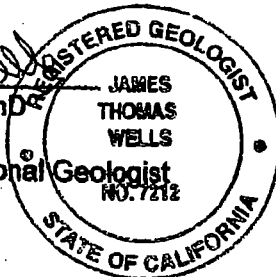


Date

08-28-08



James T. Wells, PhD
Vice President
California Professional Geologist #7212



Date

08-28-08

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TABLE 8
HISTORICAL FREE PRODUCT REMOVAL DATA •
FORMER ANGELES CHEMICAL SITE
SANTA FE SPRINGS, CA

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Well ID	Date	Product	Volume
		Thickness (feet)	Removed (mL)
A-MW-01	11/30/2000	Sheen	0
	10/30/2001	Sheen	0
	2/15/2002	0.02	0
	11/13/2002	0.03	0
A-MW-04	10/30/2001	Sheen	0
	2/15/2002	0.06	0
	10/7/2002	Not measured	0
	6/30/2004	0.2	0
	7/23/2004	0.17	0
	9/16/2004	0.16	15
	9/28/2004	0.14	0
	10/11/2004	0.14	15
	10/22/2004	0.12	0
	11/11/2004	0.12	0
	11/24/2004	0.12	0
	12/21/2004	0.13	10
	1/4/2005	0.12	0
A-MW-06	11/30/2000	Not measured	0
	10/30/2001	0.5	0
	1/18/2002	0.69	3785
	2/15/2002	0.94	1892
	6/7/2002	1	3785
	6/10/2002	0.6	1892
	6/13/2002	0.34	1893
	6/14/2002	Not measured	1893
	10/7/2002	Not measured	0
	12/2/2002	0.37	0
	9/16/2004	0.02	0
	9/28/2004	0.02	0
	10/11/2004	0.01	0
	10/22/2004	0.01	0
	11/11/2004	0.09	0
	11/24/2004	0.05	0
	12/21/2004	0.04	25
	1/4/2005	0.02	0
A-MW-08	6/7/2002	0.84	7570
	6/10/2002	0.11	0
	6/13/2002	0.87	3785
	6/14/2002	Not Measured	11355
	12/2/2002	0.44	0
	12/18/2002	Not Measured	3785
	12/18/2002	0.26	1000
	2/8/2004	0.24	100
	2/10/2004	0.36	100
	2/11/2004	0.1	0
	2/14/2004	0.15	50
	2/17/2004	0.08	0
	2/18/2004	0.08	0
	3/19/2004	0.19	150
	4/30/2004	0.75	250
	5/27/2004	0.3	50
	6/30/2004	0.37	50
	7/9/2004	0.1	10
	7/23/2004	0.34	20
	8/13/2004	0.34	50

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TABLE 8
HISTORICAL FREE PRODUCT REMOVAL DATA
FORMER ANGELES CHEMICAL SITE
SANTA FE SPRINGS, CA

PAGE 2 OF 5

Well ID	Date	Product	Volume
		Thickness (feet)	Removed (mL)
A-MW-08	9/16/2004	0.46	250
	9/28/2004	0.41	300
	10/11/2004	0.36	350
	10/22/2004	0.4	400
	11/11/2004	0.15	75
	11/24/2004	0.18	50
	12/8/2004	0.32	250
	12/21/2004	0.24	150
	1/4/2005	0.21	125
	3/19/2004	0.29	946
A-MW-10	4/30/2004	0.4	100
	5/27/2004	0.82	1893
	6/30/2004	0.51	946
	7/9/2004	0.12	15
	7/23/2004	0.26	10
	8/13/2004	1.18	3785
	9/16/2004	1.43	4731
	9/28/2004	0.57	500
	10/11/2004	0.54	600
	10/22/2004	0.63	500
	11/11/2004	0.29	200
	11/24/2004	0.2	75
	12/8/2004	0.15	50
	12/21/2004	0.18	100
	1/4/2005	0.11	50
	1/20/2005	0.11	100
	2/1/2005	0.12	100
	2/16/2005	0.06	50
	3/11/2005	0.01	0
	1/29/2004	0.51	0
A-MW-16	2/8/2004	0.51	250
	2/10/2004	0.37	150
	2/11/2004	0.29	100
	3/19/2004	0.19	150
	4/30/2004	0.41	100
	5/27/2004	0.08	25
	6/30/2004	0.34	25
	7/9/2004	0.24	10
	7/23/2004	0.24	10
	8/13/2004	0.28	50
	9/16/2004	0.12	20
	9/28/2004	0.13	20
	10/11/2004	0.06	0
	10/22/2004	0.11	15
	11/11/2004	0.04	0
	11/24/2004	0.02	0
A-MW-18	12/21/2004	0.03	5
	2/8/2004	4.96	17033
	2/10/2004	3.76	11355
	2/11/2004	3.92	12301
	2/13/2004	3.86	12301
	2/14/2004	4.3	17033
	2/16/2004	4	14194
	2/17/2004	3.8	13248
	2/18/2004	3.3	11355

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TABLE 8
HISTORICAL FREE PRODUCT REMOVAL DATA
FORMER ANGELES CHEMICAL SITE
SANTA FE SPRINGS, CA

PAGE 3 OF 5

Well ID	Date	Product	Volume
		Thickness (feet)	Removed (mL)
A-MW-18	3/4/2004	Not Measured	11355
	3/5/2004	Not Measured	5678
	3/9/2004	2.96	15140
	3/10/2004	Not Measured	3785
	3/19/2004	2.77	11355
	4/30/2004	3.5	14194
	5/27/2004	4.6	9463
	6/30/2004	2.99	5678
	7/9/2004	1.75	3785
	7/23/2004	2.04	3785
	8/13/2004	1.65	2839
	9/16/2004	0.23	100
	11/11/2004	0.22	75
	11/24/2004	0.79	500
	12/8/2004	0.96	600
	12/21/2004	0.91	600
	1/4/2005	1.22	700
	1/20/2005	0.36	200
	2/1/2005	0.66	350
	2/16/2005	0.58	300
	3/11/2005	0.13	50
	4/2/2005	0.34	200
	4/5/2005	0.04	380
	4/7/2005	0.04	380
	4/9/2005	0.04	380
	4/11/2005	0.04	380
	4/13/2005	0.04	380
	4/15/2005	0.04	380
	4/19/2005	0.04	380
	4/20/2005	0.04	380
	4/22/2005	0.04	380
	4/25/2005	0.04	380
	4/27/2005	0.04	380
	4/29/2005	0.04	380
	5/4/2005	0.04	380
	5/6/2005	0.04	380
	5/10/2005	0.03	300
	5/13/2005	0.03	300
	5/18/2005	0.03	300
	5/21/2005	0.03	200
	5/27/2005	0.04	200
	6/3/2005	0.04	100
	6/11/2005	0.03	100
	6/18/2005	0.04	100
	6/25/2005	0.04	100
	7/2/2005	0.03	100
	7/9/2005	0.03	100
	7/16/2005	0.03	100
	7/16/2005	0.03	100
	7/23/2005	0.03	100
	7/30/2005	0.03	100
	8/6/2005	0.03	100
	8/13/2005	0.03	100
	8/20/2005	0.03	100
	8/27/2005	0.02	100

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TABLE 8
HISTORICAL FREE PRODUCT REMOVAL DATA
FORMER ANGELES CHEMICAL SITE
SANTA FE SPRINGS, CA

Well ID	Date	Product	Volume
		Thickness (feet)	Removed (mL)
A-MW-18	9/3/2005	0.02	100
	9/10/2005	0.02	50
	9/19/2005	0.03	50
	10/1/2005	0.03	50
	10/8/2005	0.02	50
	10/15/2005	0.02	50
	10/24/2005	0.02	50
	10/31/2005	0.02	50
	11/12/2005	Sheen	0
	3/11/2006	Sheen	25
	6/16/2006	Sheen	0
	12/18/2007	0.65	200
	12/28/2007	0.88	220
A-MW-19	3/13/2008	Sheen	20
	1/29/2004	1.75	0
	2/8/2004	0.43	200
	2/10/2004	0.7	300
	2/11/2004	0.27	100
	2/13/2004	Not Measured	0
	2/14/2004	0.6	250
	2/16/2004	0.3	100
	2/17/2004	0.25	100
	2/18/2004	0.23	100
	3/19/2004	1.51	2839
	4/30/2004	2.05	4731
	5/27/2004	2.2	4731
	6/30/2004	2.04	3785
	7/9/2004	1.1	1893
	7/23/2004	0.77	1514
	8/13/2004	1.07	1893
	9/16/2004	1.38	1893
	9/28/2004	0.94	400
	10/11/2004	0.75	450
	10/22/2004	0.53	250
	11/11/2004	0.66	450
	11/24/2004	0.78	500
	12/8/2004	0.88	500
	12/21/2004	1	600
	1/4/2005	1.05	600
	1/20/2005	0.95	500
	2/1/2005	0.65	375
	2/16/2005	0.5	300
	3/11/2005	0.35	100
	4/2/2005	0.42	250
	4/5/2005	0.04	380
	4/7/2005	0.04	380
	4/9/2005	0.04	380
	4/11/2005	0.04	380
	4/13/2005	0.04	380
	4/15/2005	0.04	380
	4/19/2005	0.04	380
	4/20/2005	0.04	380
	4/22/2005	0.04	380
	4/25/2005	0.04	380
	4/27/2005	0.04	380

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TABLE 8
HISTORICAL FREE PRODUCT REMOVAL DATA
FORMER ANGELES CHEMICAL SITE
SANTA FE SPRINGS, CA

PAGE 5 OF 5

Well ID	Date	Product Thickness (feet)	Volume Removed (mL)
A-MW-19	4/29/2005	0.04	380
	5/4/2005	0.04	380
	5/6/2005	0.04	380
	5/10/2005	0.03	300
	5/13/2005	0.03	300
	5/18/2005	0.03	300
	5/21/2005	0.03	200
	5/27/2005	0.05	200
	6/3/2005	0.04	300
	6/11/2005	0.04	200
	6/18/2005	0.04	200
	6/25/2005	0.04	200
	7/2/2005	0.03	200
	7/9/2005	0.03	200
	7/16/2005	0.03	200
	7/16/2005	0.03	200
	7/23/2005	0.03	200
	7/30/2005	0.03	200
	8/6/2005	0.03	200
	8/13/2005	0.03	200
	8/20/2005	0.03	200
	8/27/2005	0.02	150
	9/3/2005	0.02	150
	9/10/2005	0.02	150
	9/19/2005	0.03	150
	10/1/2005	0.03	150
	10/8/2005	0.02	100
	10/15/2005	0.02	100
	10/24/2005	0.02	100
	10/31/2005	0.02	100
	11/12/2005	0.02	250
	12/12/2005	0.02	200
	1/12/2006	0.01	150
	2/11/2006	0.01	150
	3/11/2006	0.01	125
	4/22/2006	Sheen	100
	5/20/2006	Sheen	100
	6/16/2006	Sheen	60
	9/19/2006	0.05	40
	12/7/2006	0.01	25
	3/19/2007	0.005	20
	6/27/2007	0.0005	30
	9/26/2007	Sheen	20
	12/18/2007	Sheen	20
	3/13/2008	Sheen	5
MW-21	12/8/2004	2.98	1500
	12/13/2004	0.22	50
	12/21/2004	0.04	5
	1/4/2005	0.04	0
	2/1/2005	0.002	3

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